



Federal Emergency Management Agency

Washington, D.C. 20472

URBAN DRAINAGE AND FLOOD CONTROL DISTRICT FEDERAL EMERGENCY MANAGEMENT AGENCY COOPERATING TECHNICAL COMMUNITY

Task Agreement 1- Hydrologic and Hydraulic Data Preparation and Review

In accordance with the Cooperating Technical Community (CTC) Memorandum of Agreement dated May 17, 1999, between the Urban Drainage and Flood Control District (UDFCD) of Denver, Colorado, and the Federal Emergency Management Agency (FEMA), Task Agreement 1 is as follows:

General

1. The CTC - Task Agreement 1 will cover all or parts of the 32 county, city, and town governments served by the UDFCD that participate in the National Flood Insurance Program (NFIP).
2. Flood studies may affect several local governments within the counties, even if they are not in the UDFCD. UDFCD and FEMA will coordinate floodplain studies for those local governments not served by the UDFCD.
3. UDFCD and FEMA will determine the schedule for restudies for local governments within the UDFCD.
4. UDFCD will conduct flood studies in accordance with FEMA's Guidelines and Specifications for Study Contractors, (FEMA 37), dated 1/95, and FEMA's Guidelines and Specifications for Flood Map Production Coordination Contractors, dated 2/17/99, and all subsequent revisions to these documents. In addition, all flood hazard identification activities will be accomplished in accordance with the Colorado Water Conservation Board's (CWCB's) "Rules and Regulations for the Designation and Approval of Floodplains and of Storm or Floodwater Runoff Channels in Colorado," dated December 11, 1987, and all subsequent revisions to that document.
5. FEMA will perform limited review of UDFCD flood studies for general conformance to applicable standards as referenced in this Agreement.

Hydrology and Hydraulics

1. FEMA recognizes that the UDFCD has, over a 25-year period, developed a hydrologic model that provides reasonable and consistent hydrology for the Denver Metropolitan Area. The UDFCD rainfall runoff model, the Colorado Urban Hydrograph Procedure/Stormwater

Management Model (CUHP/SWMM), will be the basis for establishing flood discharges for the UDFCD. CUHP is on FEMA's list of numerical models accepted for use in the NFIP.

2. FEMA and UDFCD agree that there are currently no published regional regression equations for the Eastern Plains of Colorado, which can be used as a definitive independent check for reasonableness of UDFCD hydrology based on the CUHP/SWMM model. UDFCD will involve FEMA Headquarters, FEMA Region VIII, the CWCB, and the affected communities, in hydrology studies in an effort to reach consensus regarding the reasonableness of the UDFCD hydrology. Once regional regression equations are published, they may also be used as one means of determining whether the CUHP discharges are reasonable. If consensus cannot be reached, the matter will be taken to binding arbitration by an independent review board composed of a mutually agreed upon panel of experts. Cost for such review will be assessed equally between FEMA and UDFCD.
3. FEMA acknowledges that UDFCD maps and manages floodplains associated with the 1-percent-annual-chance (base) flood and other flood-related data (i.e. floodways) based on future projected development of the watersheds ("future-conditions hydrology"). NFIP regulations (44 CFR 60.1 (d)) encourage floodplain management regulations adopted by a State or community that are more restrictive than the minimum NFIP criteria. UDFCD acknowledges that FEMA is required to map base floodplains and associated data based on existing conditions of the watersheds ("existing-conditions hydrology") to enable the determination of actuarially-based flood insurance rates for structures located on Flood Insurance Rate Maps (FIRMs).

As two responsible agencies working toward the common goal of flood hazard reduction, both parties would prefer to publish only one set of base floodplain maps and associated data whenever possible. Therefore, the following procedures will be followed for new hydrologic and hydraulic studies conducted by UDFCD when possible.

- For watersheds that are not fully developed, or not close to fully developed, UDFCD will conduct hydrologic studies of both existing- and future-conditions hydrology. If the future-conditions hydrology is less than 130% of the existing-conditions hydrology, given the uncertainty in hydrologic estimates in general and in the UDFCD's methods, the future-conditions hydrology will be considered reasonable and can be used to calculate and map base flood elevations (BFEs) for the FIRM.
- If the future-conditions hydrology exceeds 130% of existing-conditions hydrology, the existing-conditions hydrology will be used to calculate and map BFEs for the FIRM.
- If UDFCD wishes to include the future-conditions hydrology as a component of the FIRM, it may be possible to do so according to the following considerations:
 - (a) FEMA is currently finalizing the Map Modernization Objective regarding recommendations for incorporating future-conditions hydrology in the NFIP, of which UDFCD is a participating workgroup member;
 - (b) FEMA agrees to include future-conditions hydrology information in the Flood Insurance Study and FIRM as described in the final Future-Conditions Hydrology Map Modernization report.

(c) The agreement regarding procedures for incorporating future-conditions may be included in this MOA as a separate Task Agreement.

4. In those cases where BFEs are calculated for both existing- and future-conditions hydrology, and the BFEs are within 0.5 feet or less of each other, FEMA will consider a request from UDFCD to publish only the future hydrology BFEs and floodways.

Digital Mapping

1. UDFCD has initiated a survey of the digital mapping capabilities of the local governments it serves to determine which of those communities are capable of providing digital base mapping that could be used to develop Digital FIRMs (DFIRMs) and are willing to do so. Information from this survey will be considered by UDFCD and FEMA to jointly determine the order in which communities will receive DFIRMs.
2. UDFCD will coordinate with the communities it serves to ensure that digital mapping that is used conforms to all applicable standards, including FEMA's Flood Insurance Study Guidelines and Specifications for Study Contractors, (FEMA 37), dated 1/95, the National Flood Insurance Program Standards for Digital Flood Insurance Rate Maps, dated 10/93, and all subsequent revisions to these documents.
3. UDFCD and FEMA will coordinate the selection of base maps for those communities unwilling or unable to supply digital base mapping meeting applicable standards as set forth above.

Cost Sharing

Appeals of Studies

1. UDFCD and FEMA agree to coordinate the resolution of all appeals for Flood Insurance Studies that are conducted under the terms of this Agreement.
2. UDFCD and FEMA agree to provide the necessary resources, including, but not limited to, staffing, study contractors, and technical evaluation, for the resolution of all appeals for Flood Insurance Studies that are conducted under the terms of this Agreement. In general,

for FEMA-initiated studies, FEMA will assume the lead technical review for appeal resolution. For UDFCD-initiated studies, UDFCD will assume the lead technical review for appeal resolution. In either case, however, appeal resolutions will be closely coordinated and well-documented.

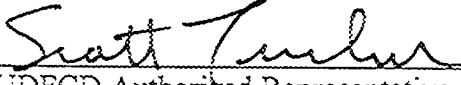
3. Final appeal resolutions will be issued to all appellants by FEMA, as regulatory authority for resolving appeals resides with FEMA.

Term

1. The respective duties, responsibilities and commitments of the parties in this Agreement shall begin on the date this Agreement is signed by the parties and may be periodically renewed, revised, or terminated at the option of any of the parties. The parties agree that a 60-day notice shall be given prior to the termination of this Agreement.
2. Each party has caused this Task Agreement to be executed by its duly authorized representatives on the date mentioned above.


UDFCD Authorized Representative
Chair, Board of Directors

5/17/99
Date


UDFCD Authorized Representative
Executive Director

5/17/99
Date


FEMA Authorized Representative

5/17/99
Date